

I CLAIM:

1. In an enhanced gravity machine for separating particulate material of higher specific gravity from particulate material of lower specific gravity, comprising a) a rotating member adapted for rotation about an axis, (b) material supply means to deliver said particulate material into said rotating member, c) a plurality of cavities extending outwardly with respect to the axis of rotation of said rotating member, said cavities each having an outlet, and d) flow controlling means for controlling the flow of material from said outlets of said cavities; the improvement wherein said flow control valves are adapted to provide an orifice of continuously variable perimeter over a substantial range of operating cross-sectional areas.
2. The centrifugal concentrator of claim 1 wherein said flow control valves provide an orifice of continuously variable perimeter over at least half the operating range of diameters.
3. The centrifugal concentrator of claim 1 wherein said flow control valves are adapted to provide a substantially circular orifice of continuously variable diameter over a substantial range of operating cross-sectional areas.
4. The centrifugal concentrator of claim 3 wherein said flow control valves provide a circular orifice of continuously variable diameter over at least half the operating range of diameters.

5. The centrifugal concentrator of claim 1 wherein said flow control valves provide an orifice whose maximum dimension along a first axis remains comparable to its maximum dimension along a second axis perpendicular to the first axis over a substantial range of operating cross-sectional areas.
6. The centrifugal concentrator of claim 3 wherein said flow control valves provide an orifice having a maximum diameter of at least one-half inch.
7. The centrifugal concentrator of claim 3 wherein said range of operating diameters is from at least as small as 1/8 inch to at least as great as 1/2 inch.
8. The centrifugal concentrator of claim 1 wherein said flow control valves comprise muscle valves, comprising an elastomeric valve sleeve and an elastomeric valve muscle.
9. The centrifugal concentrator of claim 1 wherein said flow control valves comprise air passageways communicating with the compressed air supply extending axially and embedded in the body of the valve.
10. The centrifugal concentrator of claim 1 wherein said flow control valves comprise a pressure relief passage extending from the outer surface of said valve

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^{MA}
sleeve, to the exterior of the valve body.

11. The centrifugal concentrator of claim 1 wherein said flow control valves comprise an abrasion resistant bushing around the valve exit.

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✓ 12. The centrifugal concentrator of claim 1 wherein said flow control valves are provided with a bolt extending through [?] hole ^{MA} the valve body to
✓ secure the valve and two slots in the valve body ^{MA} to receive fasteners.

10 13. The centrifugal concentrator of claim 8 wherein said valves comprise a valve body and said muscle is held in a chamber in said valve body and is pre-compressed to fit said chamber.

10 13. The centrifugal concentrator of claim 8 wherein said valves comprise a valve body and said muscle is held in a chamber in said valve body and is pre-compressed to fit said chamber.